SEQUENCE LISTING

<110> Hsu, Li-Chung
Karin, Michael

<120> Compositions and Methods for Reducing Microbial Induced Apoptosis

<130> UCSD-10860

<140> 10/578,976
<141> 2006-05-10

<160> 4

<170> PatentIn version 3.3

<210> 1
<211> 551
<212> PRT
<213> Homo sapiens

<400> 1

Met Ala Gly Asp Leu Ser Ala Gly Phe Phe Met Glu Glu Leu Asn Thr
1 5 10 15

Tyr Arg Gln Lys Gln Gly Val Val Leu Lys Tyr Gln Glu Leu Pro Asn
20 25 30

Ser Gly Pro Pro His Asp Arg Arg Phe Thr Phe Gln Val Ile Ile Asp
35 40 45

Gly Arg Glu Phe Pro Glu Gly Glu Gly Arg Ser Lys Lys Glu Ala Lys
50 55 60

Asn Ala Ala Ala Lys Leu Ala Val Glu Ile Leu Asn Lys Glu Lys Lys
65 70 75 80

Ala Val Ser Pro Leu Leu Leu Thr Thr Thr Asn Ser Ser Glu Gly Leu
85 90 95

Ser Met Gly Asn Tyr Ile Gly Leu Ile Asn Arg Ile Ala Gln Lys Lys
100 105 110

Arg Leu Thr Val Asn Tyr Glu Gln Cys Ala Ser Gly Val His Gly Pro
115 120 125

```
Glu Gly Phe His Tyr Lys Cys Lys Met Gly Gln Lys Glu Tyr Ser Ile
    130                 135                 140

Gly Thr Gly Ser Thr Lys Gln Glu Ala Lys Gln Leu Ala Ala Lys Leu
145                 150                 155                 160

Ala Tyr Leu Gln Ile Leu Ser Glu Glu Thr Ser Val Lys Ser Asp Tyr
                165                 170                 175

Leu Ser Ser Gly Ser Phe Ala Thr Thr Cys Glu Ser Gln Ser Asn Ser
            180                 185                 190

Leu Val Thr Ser Thr Leu Ala Ser Glu Ser Ser Ser Glu Gly Asp Phe
        195                 200                 205

Ser Ala Asp Thr Ser Glu Ile Asn Ser Asn Ser Asp Ser Leu Asn Ser
    210                 215                 220

Ser Ser Leu Leu Met Asn Gly Leu Arg Asn Asn Gln Arg Lys Ala Lys
225                 230                 235                 240

Arg Ser Leu Ala Pro Arg Phe Asp Leu Pro Asp Met Lys Glu Thr Lys
                245                 250                 255

Tyr Thr Val Asp Lys Arg Phe Gly Met Asp Phe Lys Glu Ile Glu Leu
            260                 265                 270

Ile Gly Ser Gly Gly Phe Gly Gln Val Phe Lys Ala Lys His Arg Ile
        275                 280                 285

Asp Gly Lys Thr Tyr Val Ile Lys Arg Val Lys Tyr Asn Asn Glu Lys
    290                 295                 300

Ala Glu Arg Glu Val Lys Ala Leu Ala Lys Leu Asp His Val Asn Ile
305                 310                 315                 320

Val His Tyr Asn Gly Cys Trp Asp Gly Phe Asp Tyr Asp Pro Glu Thr
                325                 330                 335

Ser Asp Asp Ser Leu Glu Ser Ser Asp Tyr Asp Pro Glu Asn Ser Lys
            340                 345                 350
```

```
Asn Ser Ser Arg Ser Lys Thr Lys Cys Leu Phe Ile Gln Met Glu Phe
        355                 360                 365

Cys Asp Lys Gly Thr Leu Glu Gln Trp Ile Glu Lys Arg Arg Gly Glu
    370                 375                 380

Lys Leu Asp Lys Val Leu Ala Leu Glu Leu Phe Glu Gln Ile Thr Lys
385                 390                 395                 400

Gly Val Asp Tyr Ile His Ser Lys Lys Leu Ile His Arg Asp Leu Lys
                405                 410                 415

Pro Ser Asn Ile Phe Leu Val Asp Thr Lys Gln Val Lys Ile Gly Asp
            420                 425                 430

Phe Gly Leu Val Thr Ser Leu Lys Asn Asp Gly Lys Arg Thr Arg Ser
        435                 440                 445

Lys Gly Thr Leu Arg Tyr Met Ser Pro Glu Gln Ile Ser Ser Gln Asp
    450                 455                 460

Tyr Gly Lys Glu Val Asp Leu Tyr Ala Leu Gly Leu Ile Leu Ala Glu
465                 470                 475                 480

Leu Leu His Val Cys Asp Thr Ala Phe Glu Thr Ser Lys Phe Phe Thr
                485                 490                 495

Asp Leu Arg Asp Gly Ile Ile Ser Asp Ile Phe Asp Lys Lys Glu Lys
            500                 505                 510

Thr Leu Leu Gln Lys Leu Leu Ser Lys Lys Pro Glu Asp Arg Pro Asn
        515                 520                 525

Thr Ser Glu Ile Leu Arg Thr Leu Thr Val Trp Lys Lys Ser Pro Glu
    530                 535                 540

Lys Asn Glu Arg His Thr Cys
545                 550
```

<210> 2
<211> 2808
<212> DNA
<213> Homo sapiens

<400> 2
gcggcggcgg cggcgcagtt tgctcatact ttgtgacttg cggtcacagt ggcattcagc 60

tccacacttg gtagaaccac aggcacgaca agcatagaaa catcctaaac aatcttcatc 120

gaggcatcga ggtccatccc aataaaaatc aggagaccct ggctatcata gaccttagtc 180

ttcgctggta tactcgctgt ctgtcaacca gcggttgact ttttttaagc cttcttttt 240

ctcttttacc agtttctgga gcaaattcag tttgccttcc tggatttgta aattgtaatg 300

acctcaaaac tttagcagtt cttccatctg actcaggttt gcttctctgg cggtcttcag 360

aatcaacatc cacacttccg tgattatctg cgtgcatttt ggacaaagct tccaaccagg 420

atacgggaag aagaaatggc tggtgatctt tcagcaggtt tcttcatgga ggaacttaat 480

acataccgtc agaagcaggg agtagtactt aaatatcaag aactgcctaa ttcaggacct 540

ccacatgata ggaggtttac atttcaagtt ataatagatg gaagagaatt tccagaaggt 600

gaaggtagat caaagaagga agcaaaaaat gccgcagcca aattagctgt tgagatactt 660

aataaggaaa agaaggcagt tagtccttta ttattgacaa caacgaattc ttcagaagga 720

ttatccatgg ggaattacat aggccttatc aatagaattg cccagaagaa aagactaact 780

gtaaattatg aacagtgtgc atcgggggtg catgggccag aaggatttca ttataaatgc 840

aaaatgggac agaaagaata tagtattggt acaggttcta ctaaacagga agcaaaacaa 900

ttggccgcta aacttgcata tcttcagata ttatcagaag aaacctcagt gaaatctgac 960

tacctgtcct ctggttcttt tgctactacg tgtgagtccc aaagcaactc tttagtgacc 1020

agcacactcg cttctgaatc atcatctgaa ggtgacttct cagcagatac atcagagata 1080

aattctaaca gtgacagttt aaacagttct tcgttgctta tgaatggtct cagaaataat 1140

caaaggaagg caaaaagatc tttggcaccc agatttgacc ttcctgacat gaaagaaaca 1200

aagtatactg tggacaagag gtttggcatg gattttaaag aaatagaatt aattggctca 1260

ggtggatttg gccaagtttt caaagcaaaa cacagaattg acggaaagac ttacgttatt 1320

aaacgtgtta aatataataa cgagaaggcg gagcgtgaag taaaagcatt ggcaaaactt 1380

gatcatgtaa atattgttca ctacaatggc tgttgggatg gatttgatta tgatcctgag 1440

accagtgatg attctcttga gagcagtgat tatgatcctg agaacagcaa aaatagttca 1500

aggtcaaaga ctaagtgcct tttcatccaa atggaattct gtgataaagg gaccttggaa 1560

caatggattg aaaaaagaag aggcgagaaa ctagacaaag ttttggcttt ggaactcttt 1620

gaacaaataa caaaaggggt ggattatata cattcaaaaa aattaattca tagagatctt 1680

aagccaagta atatattctt agtagataca aaacaagtaa agattggaga ctttggactt 1740

gtaacatctc tgaaaaatga tggaaagcga acaaggagta agggaacttt gcgatacatg 1800

agcccagaac agatttcttc gcaagactat ggaaaggaag tggacctcta cgctttgggg 1860

ctaattcttg ctgaacttct tcatgtatgt gacactgctt ttgaaacatc aaagtttttc 1920

acagacctac gggatggcat catctcagat atatttgata aaaaagaaaa aactcttcta 1980

cagaaattac tctcaaagaa acctgaggat cgacctaaca catctgaaat actaaggacc 2040

ttgactgtgt ggaagaaaag cccagagaaa aatgaacgac acacatgtta gagcccttct 2100

gaaaaagtat cctgcttctg atatgcagtt ttccttaaat tatctaaaat ctgctaggga 2160

atatcaatag atatttacct tttattttaa tgtttccttt aatttttac tatttttact 2220

aatctttctg cagaaacaga aaggttttct tctttttgct tcaaaaacat tcttacattt 2280

tacttttcc tggctcatct ctttattctt ttttttttt ttaaagacag agtctcgctc 2340

tgttgcccag gctggagtgc aatgacacag tcttggctca ctgcaacttc tgcctcttgg 2400

gttcaagtga ttctcctgcc tcagcctcct gagtagctgg attacaggca tgtgccaccc 2460

acccaactaa tttttgtgtt tttaataaag acagggtttc accatgttgg ccaggctggt 2520

ctcaaactcc tgacctcaag taatccacct gcctcggcct cccaaagtgc tgggattaca 2580

gggatgagcc accgcgccca gcctcatctc tttgttctaa agatggaaaa accaccccca 2640

aattttcttt ttatactatt aatgaatcaa tcaattcata tctatttatt aaatttctac 2700

cgcttttagg ccaaaaaaat gtaagatcgt tctctgcctc acatagctta caagccagct 2760

ggagaaatat ggtactcatt aaaaaaaaaa aaaaagtgat gtacaacc 2808

<210> 3
<211> 515
<212> PRT
<213> Mus musculus

<400> 3

Met Ala Ser Asp Thr Pro Gly Phe Tyr Met Asp Lys Leu Asn Lys Tyr
1 5 10 15

Arg Gln Met His Gly Val Ala Ile Thr Tyr Lys Glu Leu Ser Thr Ser
20 25 30

```
Gly Pro Pro His Asp Arg Arg Phe Thr Phe Gln Val Leu Ile Asp Glu
        35                  40                  45

Lys Glu Phe Pro Glu Ala Lys Gly Lys Ser Lys Gln Glu Ala Arg Asn
    50                  55                  60

Ala Ala Ala Lys Leu Ala Val Asp Ile Leu Asp Asn Glu Asn Lys Val
65                  70                  75                  80

Asp Cys His Thr Ser Ala Ser Glu Gln Gly Leu Pro Tyr Gly Asn Tyr
                85                  90                  95

Ile Gly Leu Val Asn Ser Phe Ala Gln Lys Lys Lys Leu Ser Val Asn
            100                 105                 110

Tyr Glu Gln Cys Glu Pro Asn Ser Glu Leu Pro Gln Arg Phe Ile Cys
        115                 120                 125

Lys Cys Lys Ile Gly Gln Thr Met Tyr Gly Thr Gly Ser Gly Val Thr
    130                 135                 140

Lys Gln Glu Ala Lys Gln Leu Ala Ala Lys Glu Ala Tyr Gln Lys Leu
145                 150                 155                 160

Leu Lys Ser Pro Pro Lys Thr Ala Gly Thr Ser Ser Ser Val Val Thr
                165                 170                 175

Ser Thr Phe Ser Gly Phe Ser Ser Ser Ser Ser Met Thr Ser Asn Gly
            180                 185                 190

Val Ser Gln Ser Ala Pro Gly Ser Phe Ser Ser Glu Asn Val Phe Thr
        195                 200                 205

Asn Gly Leu Gly Glu Asn Lys Arg Lys Ser Gly Val Lys Val Ser Pro
    210                 215                 220

Asp Asp Val Gln Arg Asn Lys Tyr Thr Leu Asp Ala Arg Phe Asn Ser
225                 230                 235                 240

Asp Phe Glu Asp Ile Glu Glu Ile Gly Leu Gly Gly Phe Gly Gln Val
                245                 250                 255

Phe Lys Ala Lys His Arg Ile Asp Gly Lys Arg Tyr Ala Ile Lys Arg
            260                 265                 270
```

```
Val Lys Tyr Asn Thr Glu Lys Ala Glu His Glu Val Gln Ala Leu Ala
        275                 280                 285

Glu Leu Asn His Val Asn Ile Val Gln Tyr His Ser Cys Trp Glu Gly
    290                 295                 300

Val Asp Tyr Asp Pro Glu His Ser Met Ser Asp Thr Ser Arg Tyr Lys
305                 310                 315                 320

Thr Arg Cys Leu Phe Ile Gln Met Glu Phe Cys Asp Lys Gly Thr Leu
                325                 330                 335

Glu Gln Trp Met Arg Asn Arg Asn Gln Ser Lys Val Asp Lys Ala Leu
            340                 345                 350

Ile Leu Asp Leu Tyr Glu Gln Ile Val Thr Gly Val Glu Tyr Ile His
        355                 360                 365

Ser Lys Gly Leu Ile His Arg Asp Leu Lys Pro Gly Asn Ile Phe Leu
    370                 375                 380

Val Asp Glu Arg His Ile Lys Ile Gly Asp Phe Gly Leu Ala Thr Ala
385                 390                 395                 400

Leu Glu Asn Asp Gly Lys Ser Arg Thr Arg Arg Thr Gly Thr Leu Gln
                405                 410                 415

Tyr Met Ser Pro Glu Gln Leu Phe Leu Lys His Tyr Gly Lys Glu Val
            420                 425                 430

Asp Ile Phe Ala Leu Gly Leu Ile Leu Ala Glu Leu Leu His Thr Cys
        435                 440                 445

Phe Thr Glu Ser Glu Lys Ile Lys Phe Phe Glu Ser Leu Arg Lys Gly
    450                 455                 460

Asp Phe Ser Asn Asp Ile Phe Asp Asn Lys Glu Lys Ser Leu Leu Lys
465                 470                 475                 480

Lys Leu Leu Ser Glu Lys Pro Lys Asp Arg Pro Glu Thr Ser Glu Ile
                485                 490                 495
```

Leu Lys Thr Leu Ala Glu Trp Arg Asn Ile Ser Glu Lys Lys Lys Arg
500 505 510

Asn Thr Cys
515

<210> 4
<211> 2380
<212> DNA
<213> Mus musculus

<400> 4
accggccagg cccggacttc catgggcagc agcagcggca gggaacggag ggcgaataga 60

tttcagagcc tgcacctgaa gtacaattcg aatcctgctc cagggagcga gccactgtcc 120

ggatccagaa actttggcca ctgggaggaa aaatggccag tgatacccca ggtttctaca 180

tggacaaact taataaatac cgccagatgc acggagtagc cattacgtat aaagaactta 240

gtacttcggg acctccacat gacagaaggt ttacatttca agttttaata gatgagaagg 300

aatttccaga agccaaaggt aaatcaaagc aggaggcaag aaacgctgca gccaaattag 360

ctgttgatat acttgataac gaaaacaagg tggattgtca cacgagtgca tctgagcaag 420

gcttgcccta tggtaactac ataggccttg tcaatagctt tgcccagaag aaaaagctgt 480

ctgtaaatta tgaacagtgt gagcccaact ctgagttgcc tcaaagattt atttgtaaat 540

gcaaaattgg gcagacgatg tatggtactg gttcaggtgt caccaaacag gaggcaaagc 600

agttggctgc gaaagaagcc tatcagaagc tgttaaagag cccgccgaaa actgccggaa 660

catcctctag cgttgtcaca tctacattca gtggcttttc cagcagctcg tctatgacaa 720

gtaatggtgt ttcccagtca gcacctggaa gtttttcctc agagaacgtg tttacgaacg 780

gtctcggaga aaataaaagg aaatcaggag taaaagtatc ccctgatgat gtgcaaagaa 840

ataaatatac cttggacgcc aggtttaaca gcgattttga agacatagaa gaaattggct 900

taggtggatt tggtcaagtt ttcaaagcga aacacagaat tgatggaaag agatacgcta 960

ttaagcgcgt taaatataac acggagaagg cggagcacga agtacaagcg ctggcagaac 1020

tcaatcacgt caacattgtc caataccata gttgttggga gggagttgac tatgatcctg 1080

agcacagcat gagtgataca agtcgataca aaacccggtg cctctttatt caaatggaat 1140

tctgtgataa aggaactttg gagcaatgga tgagaaacag aaatcagagt aaagtggaca 1200

aagctttgat tttggactta tatgaacaaa tcgtgaccgg agtggagtat atacactcga 1260

aagggttaat tcacagagat cttaagccag gtaatatatt tttagtagat gaaagacaca 1320

ttaagatcgg agactttggc cttgcaacag ccctggaaaa tgatggaaaa tcccgaacaa 1380

ggagaacagg aactcttcaa tatatgagtc cagaacagtt atttttaaag cactatggaa 1440

aagaagtgga catctttgct ttgggcctta ttctagctga acttcttcac acgtgcttca 1500

cggagtcaga gaaaataaag tttttcgaaa gtctaagaaa aggcgacttc tctaatgata 1560

tattcgacaa caaagaaaaa agccttctaa aaaaactact ctcagagaaa cccaaggacc 1620

gacctgagac atctgaaatc ctgaagacct tggctgaatg gaggaacatc tcagagaaaa 1680

agaaaagaaa cacatgttag ggcctttctg agaaaacatt cctctgccgt ggttttcctt 1740

taacgatctg cagtctgagg ggagtatcag tgaatattat ccttcttttc ttaataccac 1800

tctcccagac aggttttggt tagggtgacc cacagacatt gtatttatta ggctatgaaa 1860

aagtatgccc atttcctcaa ttgttaattg ctgggcctgt ggctggctag ctagccaaat 1920

atgtaaatgc ttgtttctcg tctgcccaaa gagaaaggca ggctcctgtg tgggaagtca 1980

cagagccccc aaagccaact ggatgaggaa ggactctggc ttttggcata aaaaagagct 2040

ggtagtcaga gctggggcag aaggtcctgc agacagacag acagacagac agacagacag 2100

agacacaaag acatggacta gaatggagga gggagggagg aagggaggga gggagagaga 2160

gagagagaaa gaaagagaga gagaccacat ggagagacaa aatggcttaa gttagctggg 2220

ctaactgaga gactgtccca gaaaacaggc caacaacctt ccttatgcta tatagatgtc 2280

tcagtgtctt tatcattaaa caccaagcag gactgctaaa aactctgcaa tagggttttt 2340

ttttcctgtt acttcaaaag caaaaaaaaa aaaaaaaaaa 2380